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Operating Instructions
Busch-Dimmer®

Dimmer
Control module 6597

BUSCH-JAEGER

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1 Safety

Warning

Electric voltage!
Risk of death and fire due to electrical voltage of 230 V.
– Work on the 230V supply system may only be performed by authorised electricians!
– Disconnect the mains power supply prior to installation and/or disassembly!

2 Intended use

The device is to be used exclusively with the components that are supplied and licensed as described in chapter "Setup and function".

3 Environment

Consider the protection of the environment!
Used electric and electronic devices must not be disposed of with domestic waste.
– The device contains valuable raw materials which can be recycled. Therefore, dispose of the device at the appropriate collecting depot.

All packaging materials and devices bear the markings and test seals for proper disposal. Always dispose of the packaging material and electric devices and their components via the authorized collecting depots and disposal companies.
The products meet the legal requirements, in particular the laws governing electronic and electrical devices and the REACH ordinance.
(EU Directive 2002/96/EC WEEE and 2002/95/EC RoHS)
(EU REACH ordinance and law for the implementation of the ordinance (EC) No.1907/2006)

Information regarding documentation
• Please observe also the associated operating manual of the connected devices.

4 Operation

4.1 Push-button mode

In button mode short signals are evaluated as switch command (tipping), longer signals as dimming command (pressing and holding). The repeat of a dimming command reverses the dimming direction. The commands are effective only within the respective channel, with the exception of group control.

4.1.1 Operation via push-button (T1/T2 for D1/D2)

The effects of the push-buttons are different depending on the setting of the coding switch:

Activation

a. Briefly tap on the button.
   Function **ON**: The brightness value last set (memory value) on master dimmer 6583 will be automatically set.
   Function **Soft ON**: Master dimmer 6583 starts from OFF within 5 seconds to brightness value that was set last.

b. Keep the button pressed.
   Master dimmer 6583 starts from OFF and dims the lights brighter as long as the button is being pressed or until the maximum brightness value has been reached.

Deactivation

a. Briefly tap on the button.
   Function **OFF**: The current brightness value is saved as a memory value. Master dimmer 6583 switches the lights off.
   Function **Soft OFF**: The current brightness value is saved as a memory value. Master dimmer 6583 controls down within 5 seconds and switches the lights off.

b. Keep the button pressed.
   Master dimmer 6583 changes the brightness of the connected lighting system. With every stop, the dimming direction is reversed. At maximum brightness, the dimmer stops; at minimum brightness, the dimming direction changes.

4.1.2 Operation via cleaning light switch

– Switch on the external selector switch (Fig. 1, 3), to activate operating mode "Cleaning light".
  While closing the cleaning light switch the lighting is switched on with the preset brightness value. The brightness value depends on the setting on the coding switch.

4.1.3 Operation via group control

- Switch on the external selector switch (Fig. 1, 2), to activate operating mode "Group control".
  While closing the selector switch there is a switchover from individual control to group control.

Continued operation, compared to individual control, is now possible via all buttons on master and slave.

Note
The control module, via which group control was initiated, is automatically made the Master.

Group control is terminated when the selector switch (2) is deactivated on the Master. During a faulty signal transmission between Master and Slave, the connected "Slaves" deactivate and return to individual control.

5 Technical data

General	
Nominal voltage	230 V AC ± 10 %, 50 Hz
Power consumption	< 1,5 W
Connecting terminals	2,5 mm^2
Protection type	IP 20
Module width	2 MW (1 MW = 18 mm)
Ambient temperature range	0 …35 °C

Extension units (T1/T2)	
Nominal voltage	230 V AC ± 10 %, 50 Hz
Push-button	NO contact to L
Number of buttons	Unlimited
Push-button lines	≤ 100 m

Control output (D1/D2)	
PWM output	12 V DC to N
Control lines	≤ 2 m
Load	"Master dimmer 6583“, maximum 9

Data line (D)	
Synchronisation	5 V SELV to -
Data lines	≤ 2 m
Load	"Control modules 6597", maximum 6

6 Setup and function

The MDRC control module serves for the control of large lighting systems such as in hotels, conference rooms, etc. Depending on requirement the lighting systems can be switched and dimmed as follows:

- individually or as a group
- synchronous

The MDRC control module can only be used in connection with universal master dimmer 6583.

6.1 Features of function and equipment

The MDRC control module offers the following functions:

Group control
The connection of an external, conventional switch can be used to switch over to a common control.

Cleaning light
With an additional external, conventional switch one of two selectable brightness values can be switched.

Data line
Up to 6 control modules can be operated jointly via this data line.

Analog mode
Synchronous control of outputs via the connection of control systems with 0 to 10 V or 0 to 20 mA, e.g. such SPS, etc.

Push-button input
Each control output (D1/D2) has a push-button input (T1/T2) assigned to it, for individually controlling the respective output.

Control outputs
Each control output can have up to 9 dimming groups consisting each of one master dimmer 6583 and a maximum of 6 capacity boosters 6584 (total 3000 W / VA) connected to it.

Coding switch
Serves for setting additional functions.

6.2 Possible combinations

	 6597 U
 3099	X

7 Installation and electrical connection

Warning

Electric voltage!
Risk of death due to electrical voltage of 230 V during short-circuit in the low-voltage line.
– Low-voltage and 230 V lines must not be installed together in a flush-mounted socket!

7.1 Requirements for the electrician

Warning

Electric voltage!
Install the device only if you have the necessary electrical engineering knowledge and experience.
- Incorrect installation endangers your life and that of the user of the electrical system.
- Incorrect installation can cause serious damage to property, e.g. due to fire.

The minimum necessary expert knowledge and requirements for the installation are as follows:
- Apply the "five safety rules" (DIN VDE 0105, EN 50110):
  1. Disconnect from power;
  2. Secure against being re-connected;
  3. Ensure there is no voltage;
  4. Connect to earth and short-circuit;
  5. Cover or barricade adjacent live parts.
- Use suitable personal protective clothing.
- Use only suitable tools and measuring devices.
- Check the supply network type (TN system, IT system, TT system) to secure the following power supply conditions (classic connection to ground, protective earthing, necessary additional measures, etc.).

7.2 Mounting

Warning

Electric voltage!
Risk of death and fire due to electrical voltage of 230 V.
– Work on the 230V supply system may only be performed by authorised electricians!
– Disconnect the mains power supply prior to installation and/or disassembly!

The MDRC must only be installed on mounting rails according to DIN EN 500022. The MDRC is latched onto the mounting rail.

7.3 Electrical connection

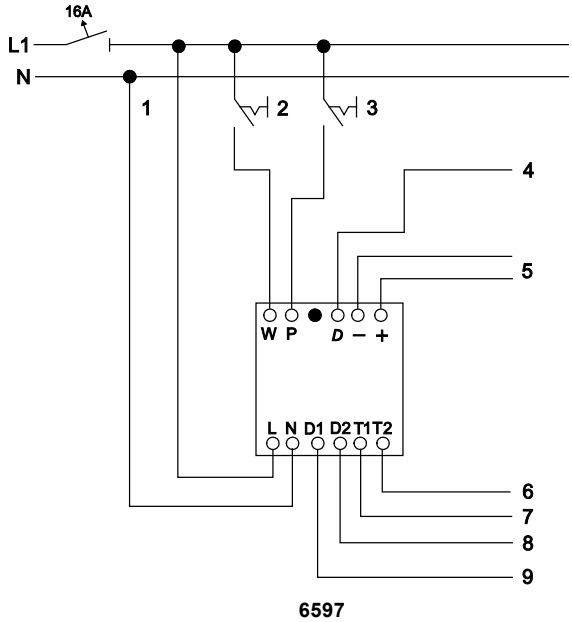

Fig. 1: Control module 6597

1 Mains supply
2 Group control selector switch
3 Cleaning light selector switch
4 Data lines of up to 6 control modules
5 Control input 0 to 10 V DC / 0 to 20 mA
6 Push-button input for control output D2
7 Push-button input for control output D1
8 Control output D2
9 Control output D1

Caution

Possible malfunctions of the devices!
Uncontrolled triggering of the fault current circuit-breaker due to different total current.
- Connect them all to a neutral conductor that is connected to a master dimmer which is connected to a control module.

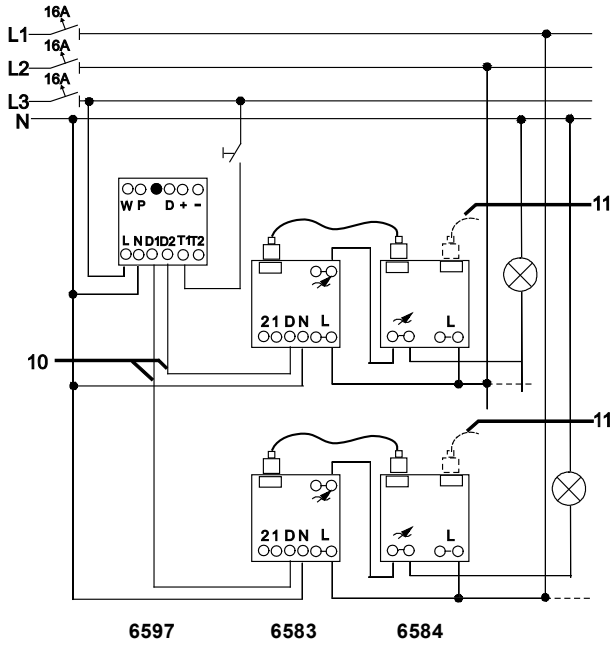

Fig. 2: Control module 6597 with master dimmer 6583 electronic power module 6584

10 Up to a maximum of 8 additional master dimmers 6583 per data line (D1 and D2)

11 Up to a maximum of 5 additional electronic power modules 6584

12 Up to a maximum of 8 additional master dimmers 6583

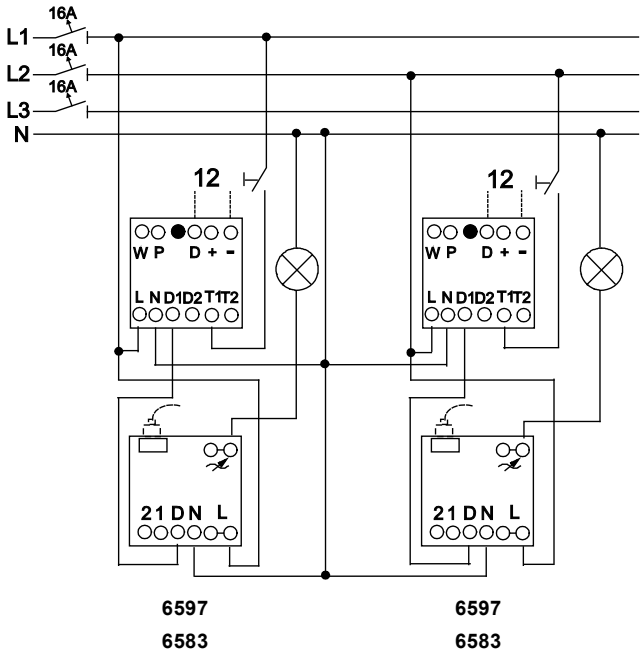

Fig. 3: Control module 6597 with master dimmer 6583

13 Up to a maximum of 4 additional control modules 6597

7.4 Extension units

Any number of push-buttons can be connected in parallel for the control. Sensing is performed to "L".

1. For all push-switch extensions do not connect the lighting glow lamp with parallel contacts. Instead, use a push-button with an N connection.
2. When laying lines, ensure that there is sufficient distance between the control and load lines (at least 5 cm).

7.5 Group control and staircase lighting

1. Please establish the connection in accordance with the desired configuration (see circuit diagrams).
2. Connect the master dimmer and electronic power modules according to the specifications in the separate instruction manuals. The operating manuals are enclosed with the devices.

8 Commissioning

8.1 Basic functions

The basic functions of the device are fixed by means of the wiring. During initial commissioning or after a reset the device automatically recognizes the desired operating mode from the first operation.

- **Push-button mode**
  or
- **Analog mode**

8.2 Assignment of the coding switch

In the factory setting of the coding switch (see illustration) all pins and the reverser are set on "off".

1 **Soft ON**, on = activated
2 **Soft OFF**, on = activated
3 **Staircase lights**, on = activated
4 **"Holiday"**, on = activated
5 **Cleaning light**, on = increased brightness level
6 **Switch for analog mode,** on = Switch on push-button input T1 is activated
7 **Self-test**, on = activated
8 Reset, on = activated
• 1 **Reverser for analog output**, off = 0 to 10 V, on = 0 to 20 mA

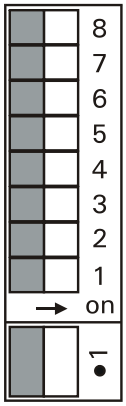

Fig. 4: Coding switch

8.3 Operating modes

Soft ON

- Slide Pin 1 on the coding switch to "on".
  Connected master dimmers 6583 start from OFF after approximately 5 seconds to the maximum brightness level.

Soft OFF

- Slide Pin 2 on the coding switch to "on".
  Connected master dimmers 6583 switch from a maximum brightness level after approximately 5 seconds to OFF.

Staircase lighting

- Slide Pin 3 on the coding switch to "on" to select this operating mode.
  This operating mode is activated via push-buttons (T1, T2). The depending on the function, individual or group control, the lighting "Individual" (D1 or D2) or "All" is set on the maximum brightness level. After 3 minutes the light is shut down with Soft-OFF. This period can be extended during the On phase by a further 3 minutes with a renewed press of the button.

"Holiday"
The control module automatically stores each channel (D1/D2) at a space of 6 minutes output statuses. After 24 hours - starting with the "oldest" value - they are overwritten. In pin position "off", this storage has no effect.
- Slide Pin 4 on the coding switch to "on". The stored signals are repeated automatically at a 24-hour cycle.

Note
Operation via buttons is possible during this operating mode. Function "Holiday" is interrupted and is continued only after switch off via the push-buttons. After a power failure the "Holiday data" may be performed time-shifted.

Cleaning light
This operating mode is activated via an external, conventional switch; both channels D1 and D2 are set on a brightness level. The brightness level adjusts to the setting on the coding switch.
- Slide Pin 5 on the coding switch to "on" to make a higher brightness level possible.

Note
Other push-buttons and analog signals are ignored.

Analog mode with switch
Tor separate switching / dimming from operation in analog mode the switch on Pin 6 must be set on On".
Prerequisite for this operating mode is that a switch (e.g. timer) has been connected to push-button input 1 who takes over this switching function.

Self-test
The self-test checks the connection and the function of the connected master timers 6583.
- Slide Pin 7 on the coding switch to "on".

This causes the following signals to be sent continuously to the two channels D1/D2:
- **D1**: Soft ON, 1 second maximum brightness level, Soft OFF, 1 second pause, then
- **D2**: as above under D1
- To end the self-test, slide Pin 7 on the coding switch back to "off".

Reset
- Slide Pin 8 on the coding switch to "on".
- All stored values are deleted
- All functions are deactivated
- Operation is not possible via push-buttons / switch
- To end the reset, slide Pin 8 back to "off", to reactivate the previous functions.

Group control
Group control applies to the individual device, the same as for all devices connected via the data line (**D** and -). It is activated by a closing, external switch. A distinction is made between "Master" and "Slave" with devices connected via the data line. The control module, via which group control was first initiated, is automatically made the Master. The outputs of all devices supply the output signal specified by the Master. The functions set on the Master are taken over by the Slaves. Exceptions are: "Reset" and "Self-test".

8.4 Priority

The respective overriding operating mode each time deactivates **all** operating modes with a lower priority.
The following hierarchy applies:
- Reset, self-test, group control, cleaning light, staircase light, manual operation

8.5 Analog mode

- Via reverser "• 1" on the coding switch the selection is made between 0 … 10 V and 0 … 20 mA operation (Off" = 0 … 10 V, "On" = 0 … 20 mA).

Both channels operate synchronously. Below a threshold of 10% of the input signal the device is deactivated; above this threshold the device switches on with the minimum brightness level and reaches the maximum brightness level at 100%.

Note
When analog mode = switching / dimming is to be separated, please observe section "Analog mode with switch".

9 Fault rectification

9.1 Mains power failure

After a power failure the operating mode selected and the stored holiday data are retained with an internal memory. A prolonged power failure has a time-shift effect on the switching commands in "Holiday" operating mode.

Diagnosis	Cause	Fault rectification
The desired function is not being performed	Incorrect Pin setting on the coding switch	Check Pin setting on the coding switch and change if necessary
	Electrical connection is faulty	Check electrical connection on circuit diagrams
	Connected dimmers or connections are faulty	Check function of connected dimmers via self-test. See coding switch (Fig. 4, Pos. 7).

Note
Information about the rectification of faults on master dimmer 6583 is contained in the enclosed operating manual.

A member of the ABB Group

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